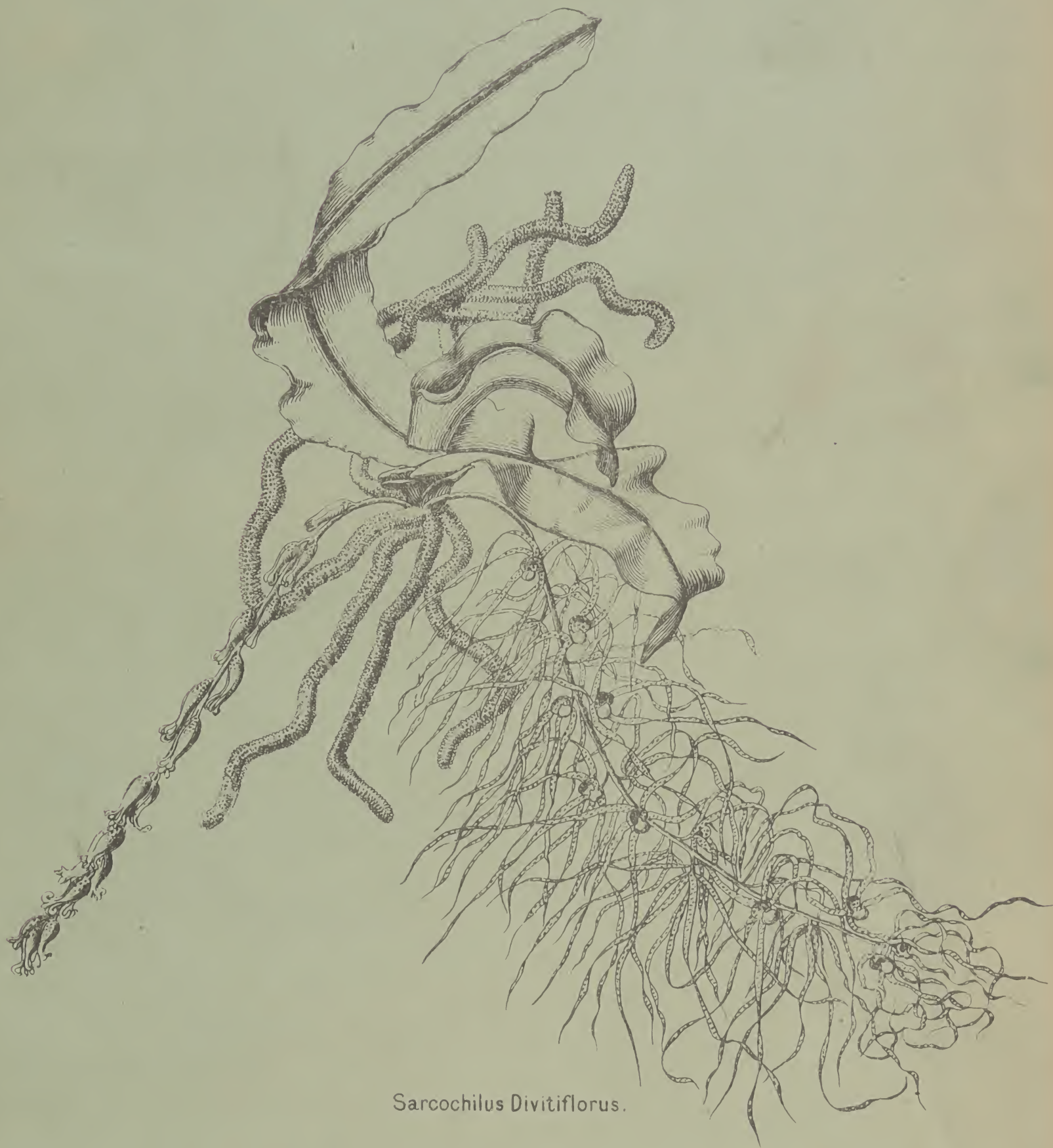


AUSTRALIAN ORCHIDS



Sarcophilus divitiflorus.

BY R. D. FITZGERALD F.L.S.

6023

SYDNEY, N.S.W.

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6023



From Nature by K. D. H. Zippel, del. F.L.S.

On Stone by Arthur J. S. Sapp.

PHOLIDOTA imbricata

Printed at the Surveyor General's Office Sydney NSW
March 1888



Genus *Pholidota*. (*Lindley*.)

EPIPHYTES extending through "East India, Malayan Archipelago, even to Southern China," but only touching Northern Australia through one species which ranges "over the greater parts of the area of the genus."

Pholidota imbricata. (*Lindley*.)

For the opportunity of figuring this Northern Orchid I am indebted to the kindness of F. M. Bailey, F.L.S., Government Botanist of Queensland. He writes, respecting it, that "it varies a good deal but our native form seems identical with the exotic;" and that "in some of the Northern scrubs it is quite common on the trees." It is, evidently (like all the Australian epiphytes I have yet seen), not self-fertilising, and as far as I can conjecture is fertilised by moths or butterflies or some other insects having a proboscis, as the opening to the flower seems too small to admit readily the entrance of insects large enough to remove the pollinia which come away from the clinandrium united together by the rostellum. It flowers in April.

EXPLANATION OF PLATE.

Fig. 1. Flower and bract from the side. 2. Labellum from the side. 3. Labellum and petals from below. 4. Petals. 5. Column from the front. 6. Column from the side. 7. Column from the back. 8. Sepal and petal. 9. Anther. 10. Pollen-masses. 11. Labellum and column from the side. 12. Flower from below.



From Nature by R.D. Fitzgerald FLS



On Stone by Arthur J. Slopps

bracteata

DIURIS.
cuneata

spathulata

Printed at the Surveyor General's Office Sydney NSW
June 1889
(No. 110. D. 23. 4.)



Diuris bracteata. (*Fitzgerald.*) Diuris cuneata. (*Fitzgerald.*)
Diuris spathulata. (*Fitzgerald.*)

DIURIS BRACTEATA, remarkable for its short broad leaves, numerous bracts, short wings to the column, and peculiar stigma (contracted in the middle), was found by H. Deane, F.L.S., near Gladesville, on the Parramatta River, New South Wales. It flowers in September.

DIURIS CUNEATA, remarkable for the wedge-shaped petals without claw (from which I have given the name), labellum shaped like a saddler's knife, ridges on labellum bearing glands and uniting into one central ridge, and the circular stigma, was found at Cootamundra, New South Wales, by W. S. Campbell. It flowers in December.

DIURIS SPATHULATA, remarkable for its spathulate labellum (from which I have given the name), the pointed divergent glands or ridges on the labellum, wings of the column united in front of the column, and circular stigma, was found by G. H. Sheaffe, at Forbes, New South Wales, and flowers in November.

To facilitate comparison the description of the above species and of *Diuris Sheaffiana* and *Diuris platichilus* are given in a tabular form, after the next plate.

EXPLANATION OF PLATE.

Diuris bracteata.—Fig. 1. Pollen-masses. 2. Labellum from above. 3. Column from the front. 4. Column from the side. 5. Side glands on labellum. 6. Labellum from the side. 7. Column from the back.

Diuris cuneata.—Fig. 1. Labellum from the side. 2. Showing union of glands on labellum. 3. Column from the front. 4. Pollen-masses from the side. 5. Showing union of glands and bend in labellum. 6. Labellum from above. 7. Column from the side. 8. Pollen-masses from the back.

Diuris spathulata.—Fig. 1. Column from the front. 2. Column from the side. 3. Column from the back. 4. Labellum from above. 5. Labellum from below. 6. Labellum from the side.



Sheaffiana

DIURIS

platichilus

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Nov^r 1888
N^o of Lith 1888 12



Diuris Sheaffiana. (*Fitzgerald.*) Diuris platichilus. (*Fitzgerald.*)

DIURIS SHEAFFIANA is named after my friend G. H. Sheaffe, District Surveyor, at Forbes, by whom the plant was found, from which the figure has been taken, and who has rendered me very great assistance by forwarding specimens of Orchids from various parts of the Colony. It is remarkable for its ovate labellum, with small truncate wings or lateral lobes, triangular stigma, and narrow not denticulate wings to the column. It was obtained at Forbes, New South Wales, and flowers in October.

DIURIS PLATICHILUS is remarkable for the very broad middle lobe to the labellum (from which the name has been given), the long narrow lateral lobes, and the pointed stigma. It was obtained at Woodford, on the Blue Mountains, New South Wales, and flowers in October.

A tabular description of the above species, as also of *Diuris bracteata*, *Diuris cuneata*, and *Diuris spathulata*, will be found on next page. It is given in this form to facilitate comparison.

EXPLANATION OF PLATE.

Diuris Sheaffiana.—Fig. 1. Labellum from above. 2. Labellum from the side. 3. Column from the front. 4. Column from the back. 5. Column from the side. 6. Pollen-masses from the side, front, and back. 7. Ridges or glands of the labellum.

Diuris platichilus.—Fig. 1. Labellum from above. 2. Column from the front. 3. Column from the back. 4. Column from the side. 5. Pollen-masses from front and back. 6. Labellum from the side. 7. Glands or ridges of the labellum.

DIURIS.	STEM.	LEAVES.	BRACTS.	FLOWERS.	SEPAL.	PETALS.	LABELLUM.	COLUMN.	STIGMA.	ROSTELLUM.	SEASON OF FLOWERING.
<i>Diuris brevicauda</i> (from the number of bracts on the stem).	Rather stout, about nine inches.	Two, broad, linear, about five inches long and half an inch broad.	About six, linear, from one inch to two inches; floral bract, very small.	About three, yellow, two brown blotches at the base of the dorsal sepal, on short pedicels.	Dorsal sepal, shorter than labellum, broad, embracing the column; four lines long; lateral sepals narrow, brown, dilated at the ends, which are green, half an inch long.	Yellow, about four lines, oval, on brown claws of same length.	Five lines long; three lobed; the lateral lobes narrowing at the base, three lines; the middle lobe broad, reniform, a smooth ridge down the whole of the centre, two prominent side lines curved in to the central line at half their length.	Wings as long as the anther; shorter than the stigma; deeply denticulate.	Long, deep, with the sides almost meeting in the centre.	Very large.	September.
<i>Diuris cucata</i> (from the wedge-shaped petals).	Slender, about one foot.	Narrow, linear, about six inches long and two lines broad.	One (or two?), stem clasping, about one and a half inch long, terminating in a fine point; floral bracts, linear, acute, one to one and a half inch long.	About four, yellow, blotched with lilac, on short pedicels.	Dorsal sepal, broadly, ovate-oblong, erect, five lines long; lateral sepals green, filiform, more than two inches long.	Yellow, blotched with lilac, eight lines long, cuneate (not on claws) spreading.	Four lines long; three-lobed; the lateral lobes spreading truncate, two lines long; the middle lobe narrow for half its length, then semicircular and bending downwards, having a plate with raised edges down the narrow part; the edges then forming a small gland on each, and uniting in a central ridge prolonged a little beyond the labellum.	Anther longer than the stigma; wings shorter than the anther, but longer than the stigma; linear-lanceolate, acute (not denticulate).	Shallow, circular.	Large.	December.
<i>Diuris spathulata</i> (from the spatulate form of the labellum).	Slender, about nine inches.	Two, narrow, linear, from four to six inches long, two lines broad.	One (or two?), clasping the stem, about two inches long, terminating in a fine point; floral bracts, linear, acute, about one inch long.	About five, pale lilac, on short pedicels.	Dorsal sepal, longer than the labellum, broad, embracing the column, five lines long, recurved near the centre; lateral sepals, green, linear, acute, not one inch long.	Lilac, about five lines long, ovate-lanceolate, on claws of same colour, and about three lines long.	Five lines long; lilac, with darker lines running from the central ridge; three lobed; the lateral lobes not two lines long; acute; recurved; middle lobe spatulate; a smooth ridge down the centre for nearly the whole length; two prominent side lines with acute ends diverging from the central ridge, and much shorter than it.	Contracting into a blunt anther which overhangs the stigma; wings not as long as the anther, but as long as the stigma; linear, acute, not denticulate, diverging, united at the base of the column.	Shallow, circular.	Not large.	November.
<i>Diuris Shaufliana</i> (after G. H. Shcaff).	Rather stout, about one and a half feet.	One (or two?) linear, about ten inches long, and four lines broad.	One (or two?) sheathing, linear, tapering, two and a half inches long; floral bracts, linear, tapering, one and a half to two and a half inches long.	About six, orange, the dorsal sepals spotted with red, on very short pedicels.	Dorsal sepal, ovate-lanceolate, spotted with red, half an inch long; lateral sepals, green, linear, acute, about one inch long.	Orange, ovate, four lines long, on short red claws, about two lines long.	Four lines long; three lobed; the lateral lobes one and a half lines long; linear truncate white, spotted and blotched with purple incurved; middle lobe narrow for nearly half its length, then ovate orange; a smooth ridge down the centre for the whole length; two prominent side lines white spotted with red, acute, not half the length of the central.	Contracting to a point longer than the stigma (but not overhanging); wings tapering to a point, not denticulate, as long as the stigma.	Shallow, equilateral, the rostellum at the vertex.	Not large.	October.
<i>Diuris phalichilus</i> (from the broad labellum).	Slender, about two feet.	Two, narrow, linear, more than one foot.	Two or three, stem clasping, from two to three inches, terminating in a fine point; floral bracts, about half an inch.	Pale yellow, on rather long pedicels.	Dorsal sepal, ovate-lanceolate, recurved, three lines long; lateral sepals, greenish-brown, linear, acute, about seven lines long.	Pale yellow, ovate, three lines long, on green claws, less than three lines long.	Pale yellow, spotted with brown, four lines long; three lobed; the lateral lobes linear-lanceolate, three lines long spreading; the middle lobe narrow for half its length, then spreading and becoming as broad as long; a smooth ridge down the centre for the whole length; two prominent side lines for half its length.	Anther shorter than stigma; wings as long as the stigma; broad, linear denticulate.	Shallow, triangular, contracting downward almost to a point.	Large.	October.



From Nature and on Stone by R.D. Fitzgerald F.L.S.

CALADENIA
Menziesii

LEPTOCERAS
fimbriata

Printed at the Surveyor General's Office Sydney N.S.W.
June 1889.
(No. of Lich. D. 855)



Genus *Leptoceras*. (*Lindley*.)

BROWN gave the name of *Leptoceras* to a section of *Caladenia*, including *Caladenia Menziesii* and *Caladenia macrophylla* (which he considered to be distinct), but he does not appear ever to have seen *Leptoceras fimbriata*. Lindley made a genus of the section, including that species, to which in my opinion it should at present be restricted. The definition of the section may be converted into one of the genus by the addition of a few words (I have not the description by Lindley). "Sepals acute or rather obtuse, the dorsal one erect, narrow, linear-clavate longer than the sepals." Labellum without glands. Leaf short, broad, and smooth. Terrestrial glabrous herb.

Caladenia Menziesii. (*R. Brown*.) *Leptoceras fimbriata*. (*Lindley*.)

CALADENIA MENZIESII is confined to Western Australia, where it is not uncommon in sandy and shady localities. It flowers in September.

LEPTOCERAS FIMBRIATA is also a Western form, though found in South Australia and recently in Victoria. The leaves are much more frequently observed than the flowers, which are to be obtained in June, and long afterwards in a dried state. It is with great reluctance that I depart in any case from the naming and arrangement as given in the "Flora Australiensis," I cannot, however, concur with the inclusion of this species in the genus *Caladenia*. It seems to me to depart from it in so many important characters that I have ventured to replace it in Lindley's genus *Leptoceras*, for the following reasons:—The leaf or leaves are in no respect those of a *Caladenia*; in *Caladenia* I have never seen more than one leaf which is always thin and usually hairy; in this plant the leaf is hard, thick, and shining, and occasionally there are two; in *Caladenia* the tubers are generally numerous; in *Leptoceras fimbriata* I have only observed one; the labellum is without the characteristic glands and is not of the form obtaining in *Caladenia*, and the stigma is very different in form being triangular and deep sunk, the upper parts overhanging, not oval and shallow, and the flowers have the peculiarity (as shown in one of the figures) of drying and continuing in a state hardly to be distinguished from the fresh flowers long after the seed has been shed. It approaches *Caladenia Menziesii* only (so far as I can see) in having erect linear-clavate petals, in which *Caladenia Menziesii* is itself peculiar. *Leptoceras fimbriata* seems to come nearer to *Eriochilus* than to *Caladenia*, but differs from it also so much that I do not think it can be removed to that genus.

EXPLANATION OF PLATE.

Caladenia Menziesii.—Fig. 1. Labellum from below and above. 2. Labellum from the side. 3. Calli of the labellum. 4. Column from the front. 5. Column from the back. 6. Column from the side. 7. Top of column from the front.

Leptoceras fimbriata.—Fig. 1. Column from the side, the back, and the front. 2. Top of column, anther removed, and from the side and front. 3. Labellum from the side. 4. Labellum from the back and from the front.



From Nature and on Stone by R.D. Fitzgerald, F.L.S.

densum

ansatum.

transversum

longisepalum.

Printed at the Department of Lands, Sydney, N.S.W.
Nov 1880.
No. 100 of 1880.

IN order to afford an opportunity for the better comparison of some of the small and very perplexing forms of *Prasophyllum* twelve species are given on three plates, with full details, and (after the third plate) descriptions in a tabular form of the species (previously described in the *Journal of Botany* for May, 1885, No. 269, Vol. XXIII, page 135). The tabular form of description is adopted in the hope of enabling the reader more easily to grasp distinctions which can only be made out under the microscope.

Prasophyllum densum. (*Fitzgerald.*) *Prasophyllum ansatum.* (*Fitzgerald.*)
Prasophyllum transversum. (*Fitzgerald.*) *Prasophyllum*
longisepalum. (*Fitzgerald.*)

PRASOPHYLLUM DENSUM.—I am indebted to E. Merewether for the opportunity of figuring this little *Prasophyllum* from Mount Wilson, in the Blue Mountains, New South Wales. It is remarkable for the crowded flowers (from which it is named), for all the parts of the perianth bearing glands, for its smooth labellum, and the wings of the column being blunt and undivided. It flowers in January, and is, no doubt, fertilised by insects, as shown by the pollen-masses being unbroken and easily removed with the rostellum.

P. ANSATUM.—This species also was kindly sent to me by E. Merewether, from Mount Wilson. It, too, flowers in January, and is remarkable for the handles, as it were, on the sides of the labellum (from which it has been named), for glands on the petals and sepals, and on the rather long point of the anther, and for small glands on the stigma. It is fertilised by insects.

PRASOPHYLLUM TRANSVERSUM is remarkable for its very small flowers, its long crossed sepals (from which it is named), its much shorter petals, its abortive or non-articulate labellum, and undivided pointed wings of the column. I only found two plants of this species in flower at Mount Wilson in April. It is evidently self-fertilised, and its flowers can hardly be said to open.

PRASOPHYLLUM LONGISEPALUM.—I obtained this species at Mount Wilson. It flowers in March and is remarkable for the length of the lateral sepals as compared with the other parts of the flower, its thick lingular labellum, the large undivided wings of the column enwrapping the stigma, blunt anther, and very long stigma. It appears to be fertilised by insects, notwithstanding the inclosure of the rostellum and stigma by the wings of the column, as the pollen-masses come away easily and unbroken from the anther.

EXPLANATION OF PLATE.

Prasophyllum densum.—Fig. 1. Flower from the side. 2. Pollen-masses. 3. Flower from above and gland of petal. 4. Labellum from the front and side. 5. Column from the side and from above.

Prasophyllum ansatum.—Fig. 1. Flower from the side. 2. Column from above. 3. Flower from above. 4. Flower from the side, sepals and one petal removed. 5. Labellum from front and side. 6. Anther. 7. Pollen-masses.

Prasophyllum transversum.—Fig. 1. Flower from side. 2. Flower from above. 3. Column from the side.

Prasophyllum longisepalum.—Fig. 1. Flower from the side. 2. Gland on petal. 3. Flower from above. 4. Pollen-masses. 5. Labellum from front and side. 6. Petals, showing also part of anther and hinge of labellum. 7. Column from above. 8. Column, wings forced open.

Prasophyllum intricatum. (Stuart.) Prasophyllum filiforme. (Fitzgerald.)
Prasophyllum rufum. (R. Brown.) Prasophyllum viride. (Fitzgerald.)

PRASOPHYLLUM INTRICATUM has only been found by me in one locality, Mount Wilson, in the Blue Mountains, New South Wales. It was originally described from Tasmanian specimens. It is rather strange that the flowers open fully, as the stigma is imbedded in the pollen, which is friable and crumbles over it. It is evidently self-fertilised. The flowering season is in March and April.

PRASOPHYLLUM FILIFORME (named from the filiforme prolongation of the anther) was figured as possible hybrid in Vol. 1, part 5, plate 1, but I have come to the conclusion that it is a distinct species from an extended examination of the genus, and from the fact that I have since found it in two or three distinct situations, though in the same locality, namely, Bargo Brush, near Picton, New South Wales. It has been described in the Journal of Botany, May, 1885, No. 269, page 187, Vol. XXIII. It is a species which I believe always requires for its fertilisation the intervention of insects. The pollen-masses come away readily and unbroken from the anther, and the flowers open fully. It flowers in March.

PRASOPHYLLUM RUFUM has, so far as I am aware, the smallest flowers in the genus. It is rather generally difused in suitable localities in New South Wales, and belongs also to Victoria, Tasmania, and Queensland. It is, I think, an uncertain flowerer, as I sought for it unsuccessfully for several years, but no sooner had I found it then it was sent to me from several localities. It is clearly a self-fertilising species, and its flowers never open. It flowers in June and July.

PRASOPHYLLUM VIRIDE I have only found in one locality, Springwood, on the Blue Mountains, but there it is not uncommon on sandy and stony flats. It is, I believe, wholly self-fertilised, and its flowers cannot be said to open though not absolutely closed. It flowers in March.

[For tabulated descriptions see page after next plate.]

EXPLANATION OF PLATE.

Prasophyllum intricatum.—Fig. 1. Dorsal sepal and column, one wing removed. 2. Anther, showing end of stigma, rostellum and pollen. 3. Flower from the side. 4. Labellum from the front. 5. Flower from above. 6. Stigma and anther from the side. 7. Gland at end of sepal. 8. Column from above. 9. Flower from below. 10. Labellum from the side.

Prasophyllum filiforme.—Fig. 1. Pollen-masses. 2. Flower from the side. 3. Anther and wing of column from the side. 4. Column from above. 5. Labellum from the front. 6. Labellum from the side. 7. Flower from above. 8. Pollen-masses.

Prasophyllum rufum.—Fig. 1. Flower from the side. 2. Flower from above. 3. Labellum from the front. 4. Column from the side. 5. Labellum petal and part of dorsal sepal from the side. 6. Anther. 7. Dorsal sepal and petal from the side.

Prasophyllum viride.—Fig. 1. Flower from the side. 2. Flower from above. 3. Dorsal sepal, petal, and hinge of the labellum from the side. 4. Labellum from the side. 5. Column and labellum. 6. Stigma and rostellum. 7. Labellum from the back. 8. Anther. 9. Wing of column.



From Nature and on Stone by R.D. Fitzgerald F.L.S.

Woolsii

PRASOPHYLLUM.
reflexum laminatum.

eriochilum.

Printed at the Department of Lands, Sydney, N.S.W.

Nov 1880
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Prasophyllum Woollsii. (*Mueller.*) *Prasophyllum reflexum.* (*Fitzgerald.*)
Prasophyllum laminatum. (*Fitzgerald.*) *Prasophyllum*
eriochilum. (*Fitzgerald.*)

PRASOPHYLLUM WOOLLSII has been named in honour of Dr. Woolls, F.L.S., who has done so much for the botany of this country, and it is with his concurrence as to the specimen figured being identical with the plant originally found by him at Bent's Basin (New South Wales), that I have given it as such. It comes near *Prasophyllum intricatum*, but differs from it notably in the flowers being larger, in the sepals being gibbous, and without glands at the point, the stigma being without glands, and the pollen-masses removable entire and attached to the rostellum; making the species dependent for its fertilisation on insects, whereas *P. intricatum* is self-fertilised. The specimen from which the drawing has been taken was found by H. Deane, F.L.S., at Lane Cove, New South Wales. The flowering season is February.

PRASOPHYLLUM REFLEXUM is remarkable for its reflexed labellum (from which the name has been given), for its long dense spike of flowers, flat united sepals, and long point to the anther. It was found on Jamberoo Mountain, and at Dural, New South Wales, by G. H. Sheaffe. It flowers in June and July.

PRASOPHYLLUM LAMINATUM is remarkable for the raised plate on the labellum (from which it is named), for the fine points to the sepals and petals, and for its light-red colour. It was found by G. H. Sheaffe, at Bowral, New South Wales, and flowers in May.

PRASOPHYLLUM ERIOCHILUM is remarkable for the hairs covering the labellum (from which it has been named), for the square form of the flowers, and the long linear stigma. I obtained it in flower on Mount Wilson, in the Blue Mountains (New South Wales), in November.

All the above species are dependent on insects for their fertilisation, and the pollen-masses are readily removed entire from below the stigma by a touch to the rostellum.

EXPLANATION OF PLATE.

Prasophyllum Woollsii.—Fig. 1. Anther and pollen-masses. 2. Labellum from above. 3. Flower from the back and side. 4. Column and labellum from the side. 5. Flower from the front. 6. Column from above. 7. Pollen-masses.

Prasophyllum reflexum.—Fig. 1. Anther, pollen-masses, and end of stigma. 2. Wing of column. 3. Column from above. 4. Pollen-masses. 5. Labellum from front and side. 6. Flowers from above and from the side.

Prasophyllum laminatum.—Fig. 1. Flower and bud from the side. 2. Pollen-masses. 3. Labellum from the front. 4. Column and labellum. 5. Labellum from the side.

Prasophyllum eriochilum.—Fig. 1. Flower from the side. 2. Flower from above. 3. Stigma and anther. 4. Labellum from the side and front. 5. Column from the side. 6. End of stigma, pollen-masses and anther.

PRASOPHYLLUM.	STEM.	BRACTS.	FLOWERS.	SEPAL.	PETALS.	LABELLUM.	WINGS OF COLUMN.	STIGMA.	ANTHER.	HOW FERTILISED.	SEASON OF FLOWERING.
<i>Prasophyllum densum</i> (from the flowers being in a close spike).	Rather slender; about 5 inches.	Almost subulate, very close to the flowers.	Opening, red-brown, in dense spike of hardly more than half an inch.	About two and a half lines, narrow, lanceolate, acute, with fine point, bearing a gland. Dorsal sepal not quite so long, hooded, lanceolate, acute, with point bearing a gland.	About one line, lanceolate, acute, point bearing a gland.	On long claw, linear, lanceolate, acute, with a gland at the point, minutely ciliate towards the end, surface smooth and flat, light red-brown.	Blunt, entire, not covering the stigma.	Linear, lanceolate.	Short, with a gland at the point.	Insects.	January.
<i>Prasophyllum canasatum</i> (from the eared lobes to the labellum).	Slender; about 4 inches.	Almost subulate, very close to the flowers.	Opening, red-brown and green, in rather close spike of hardly one inch.	Rather more than one line, lanceolate, acute, with a gland at the point. Dorsal sepal rather more than half a line, hooded, broadly lanceolate, with fine point, but no gland.	Light red-brown, half a line long, nearly straight on the upper edge, but broadly lanceolate on the lower, acute, the point bearing a gland.	On rather long claw, linear, lanceolate, blunt, thickened and glandular for about half its length towards the point, with two auricles on the edges about the middle, light red-brown, not articulated.	Not covering the stigma, shortly bifid, the upper tooth a little longer than the lower, acute, the lower blunt.	Linear, with three small glands about one-third from the rostellum, the part between them and the stigma probably alone stigmatic.	Short, with subulate point about one-third the length of the anther, and with a gland at the end.	Insects.	February.
* <i>Prasophyllum transversum</i> (from the crossed sepals).	Slender; about 5 inches.	With subulate point, close to the flowers.	Hardly opening, red-brown and green, in almost gibbous, in spike of half an inch, and formed of about seven flowers.	One line long, almost gibbous, tapering into long points which cross each other and are terminated by a gland. Dorsal sepal hooded, broadly lanceolate, acute, without gland, a little more than half a line.	Half a line long, lanceolate, acute, without gland, shorter than the dorsal sepal.	Ovate, acuminate, smooth, unless it be considered to be wanting and only represented by the prolongation of the column which in others forms the hinge, red.	Almost covering the end of the stigma near the rostellum, not bifid, blunt, slightly falcate.	Linear, triangular.	Short and flat, with very small gland at the apex.	Self.	April.
<i>Prasophyllum lanceipetalum</i> (from the long sepals).	Stouter than any of the group except <i>viride</i> ; about 6 or 7 inches.	Linear, acute, close to the flowers.	Not opening, brownish-yellow and green, in a rather dense spike of about one inch.	Linear, blunt, a quarter of an inch long, without gland. Dorsal sepal hooded, lanceolate, acute, without gland, one line and a half long.	Shorter than dorsal sepal, falcate, thick, with gland on the inside of the blunt point.	Articulate on long claw, thick, keeled below, smooth and flat above linear, but broader at each end than in the centre, suddenly contracting at the end into a blunt, thick point, red-brown.	Extending from the claw to the rostellum, overlapping the stigma, not bifid, hardly acute.	Linear, very long.	Short, with blunt points, not bearing a gland.	Insects.	March.
<i>Prasophyllum filiforme</i> (from the filiform point to the anther).	Very slender; about 8 inches.	Sheathing, with almost subulate point, about one inch from the flowers.	Opening, very light yellowish-red in loose spike of about eight flowers.	Linear, lanceolate, acute, a quarter of an inch long, united for a quarter of their length, recurved, the fine point not bearing a gland. Dorsal sepal hooded, lanceolate, acute, reflexed, the fine point not bearing a gland.	Two lines long, narrow, lanceolate, acute, minutely ciliate on the edges, the fine point not bearing a gland.	Articulate on a short claw, oblong, lanceolate, microneurate, crenate along the edges, the point reflexed, not bearing a gland.	Extending from the claw and about a third of its length beyond the rostellum, slightly bifid, the lower division long and almost filiform, and the upper short and crenulate.	Very short, oblong, with very large rostellum.	Anther larger than in other closely allied species except <i>P. puberulum</i> , with very long point, filiform, recurved twice the length of the anther, not bearing a gland.	Insects.	March.
<i>Prasophyllum viride</i> (from the green flowers).	The stoutest in the group; about 7 inches.	Leafy, close to the flowers.	Not opening, green, gibbous, in spike of about one inch, not very dense.	Gibbous, acute, without gland, about a line and a half long. Dorsal sepal not quite so long, broadly hooded, with acute point without gland.	Longer than dorsal sepal, lanceolate, acute, with slender point transparent.	Articulate on very long claw, convex, triangular, deep blunt, recurved point, deep sinus on each side of the hinge, surface rugose, with slight depression down the centre, yellow with red claw.	Covering the stigma, bifid, the upper division twice as long as the lower, subulate, minutely ciliate, the lower blunt, not ciliate.	An acute triangle, a small part only at the end near the rostellum apparently stigmatic.	Short, with short acute point, not bearing a gland.	Self.	March.
<i>Prasophyllum ruficarpum</i> (from the bends in the centre of the labellum).	Slender; about 1 foot.	Sheathing, acute, one and a half inches or more from the flowers.	Opening, red-brown, in rather close spike of twenty or more flowers.	Two lines long, broadly lanceolate, acute, united for half their length, without gland. Dorsal sepal one line and a half, hooded, ovate, lanceolate, acute, with fine point without gland.	Longer than dorsal sepal, lanceolate, acute, finfricate on both edges towards the end.	Articulate on short claw, oblong, thick, having orbicular reflexed lobes about the centre and two broad thickened longitudinal plates, recurved at a right angle, the point being further recurved and fringed, red.	Not covering the stigma, extending from the claw beyond the rostellum, deeply bifid, the upper division acute, ciliate on the upper edge, the lower blunt, falcate, shorter than the upper.	Ovate, lanceolate, short.	Short, with rather long microneurate point bent at right angle in the centre, not bearing a gland.	Insects.	February.
<i>Prasophyllum lamiatum</i> (from the plate on the labellum).	Very slender; about 9 inches.	Sheathing, half an inch or more from the flowers.	Opening, light red, in spike of more than one inch long, of about twenty flowers rather far apart.	One line and a half long, lanceolate, with fine point, no gland. Dorsal sepal of the same length as the others, hooded, broadly lanceolate, with fine point, no gland, the edges thickened, and of dark red colour.	Very slightly shorter than the sepals, lanceolate, acute, without gland, a dark red line running down the centre and along the edges.	Articulate on a rather long claw, trapezoid, narrower near the claw, having a small tooth in the centre of the opposite end, yellow, smooth, but having a broad linear red plate in the centre.	Not covering the stigma, extending from the claw beyond the rostellum, deeply bifid, the upper division the longer, both linear, acute.	Lanceolate.	Short and deep, with rather short subulate point, not bearing a gland.	Insects.	May.
<i>Prasophyllum viridulum</i> (from the hairy labellum).	Slender; about 10 inches.	Sheathing, one inch or more from the flowers.	Opening, brown and green, in rather open spike of about an inch long of about sixteen flowers.	About one line and a half long, gibbous, green and brown, lanceolate, acute, without gland, united at the base. Dorsal sepal hooded, broadly lanceolate, acuminate, without gland, minutely ciliate on the edge, about one line long.	The same length as the dorsal sepal, lanceolate, with long point, ciliate along the upper edge, no gland.	Articulate on short claw, ovate, lanceolate, with long ciliate point, the surface covered with hairs except near the claw, brown.	Not covering the stigma, bifid, the upper division longer than the lower, both glandular along the edges.	Linear, triangular, with large rostellum.	Short, with a gland at the point.	Insects.	November.

* NOTE.—Previously named *attenuatum* in the Journal of Botany, altered on account of that name having been previously given to another species.





From Nature and on Stone by R.D. Fitzgerald F.L.S.

DENDROBIUM speciosum

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Dendrobium speciosum. (Smith.)

DENDROBIUM SPECIOSUM, about thirty years ago, was common on all the sandstone cliffs about Sydney, and on such outlying rocks as were large enough to afford safety from bush fires, none are now to be found except in gardens and every year the circle is enlarging within which it is disappearing never to return. "The Rock Lilly," as it is called, will never again be found in the localities from which it has been removed, or multiply in those to which it has been taken. It may produce seed, but the seed never grows, and at length the old plants must die never to be replaced. I have sown millions of seed in the most favourable situations without success, and even in places where it has not been disturbed, though the plants be numerous, very few indeed are young. On the bare or moss-covered rock (at least in the southern portion of its habitat) is the place where the Rock Lily grows, but this is only because it is the only place on which its seed vegetates, for when the plants are removed and given a liberal supply of rich mould and old manure they improve wonderfully. It was from such a cultivated plant that the figure has been taken. In some places, however, where the soil accumulates about them and is composed of leaf mould and ashes blown upon them, they may be found equally fine. There are exceptional years in which there is a general flowering of all the plants in a district, but *Dendrobium speciosum* never flowers freely in succeeding years.

The year 1889 was one in which all the *Dendrobiums* flowered well, and notes taken in that year will give an idea of the flowering and fertility of the genus in the open:—*Dendrobium speciosum*, number of spikes on best plant, 35; number of flowers on best spike, 158; total of flowers on plant, on average of 120 flowers to each spike, 4,200. Number of capsules set on plant, 7; number of spikes producing capsules, 5; largest number of capsules on spike, 3. Seven capsules to four thousand two hundred flowers.

Dendrobium Hillii (form of *D. speciosum*), number of spikes on best plant, 95; number of flowers on best spike, 291; total of flowers on plant at average of 180 flowers to each spike, 9,000. Number of capsules on plants, 9; number of spikes producing capsules, 6; largest number of capsules on a spike, 3. Nine capsules to nine thousand flowers.

Without the intervention of insects *Dendrobium speciosum* never produces seed, very frequently there are no capsules on a plant. An insect, *Stethopachys formosa* (shown on figure), frequently attacks this species, devours the leaves, and crawls about the flowers. It is, so far as I could observe, when these insects are upon the plants that they generally produce capsules, I am therefore of opinion that *Stethopachys formosa* is a principal agent in the fertilisation.

When the pollen-masses of any other species of *Dendrobium* or its own are placed in the stigma the flower at once turns a much deeper yellow and soon fades, the stigma rises till it nearly fills the hollow, and a capsule is almost invariably formed. It seems strange that if the pollen-masses are removed from the clinandrium and not placed on the stigma the same rapid change of colour and fading takes place, though of course no capsule is formed. At night, or in dull weather, there is no perfume from the flowers but in the full heat of the day they exhale a very strong sweet odour. The time of flowering is September. The capsules hang down and open gradually upwards, the seed falling in little puffs for several days and being carried away by the wind.

The only approach to success I have had from sowing the seed of *Dendrobium* has been the vegetation in one year of one hybrid seed of *D. speciosum*, and in the succeeding year of three seeds. They grew on the spongy remains of a dead birds-nest fern (*Asplenium nidus*) and were kept moist by a simple contrivance. In five years the first grown consisted of three pseudo-bulbs, the largest of the size of a swan drop, with a leaf half an inch long. In four years the three younger had each two pseudo-bulbs, the previous ones of the two first years having decayed; the largest of the bulbs was the size of a No. 1 shot, with a leaf a quarter of an inch long. I carefully watched and tended these plants for five and for four years, when one morning I found a large hairy caterpillar in the act of devouring the last pseudo-bulb.

EXPLANATION OF PLATE.

Fig. 1. Labellum from the side. 2. Labellum from end and side. 3. Column, with parts of sepals and petals. 4. Pollen-masses. 5. Capsule (not magnified).



From Nature by R. D. Fitzgerald, F.L.S.

On Stone by Arthur J. Stopps

ixioides

CALADENIA

gemmata

Printed at the Surveyor General's Office Sydney N.S.W.

Nov^r 1888
N^o of Lith. D. 88 12



Caladenia gemmata. (*Lindley.*) Caladenia ixioides. (*Lindley.*)

CALADENIA GEMMATA is a very pretty but very unusual form of Caladenia. It is unlike others in the form of the flower and leaf and in having but one tuber; the column, however, and the labellum, covered as it is with calli, retain it in the genus. It is generally distributed in Western Australia, to which Colony it is confined. It flowers in August.

CALADENIA IXIOIDES is also restricted to Western Australia, and is a very local species, I only found it in one locality, Henly Park, near Perth. There is far more reason for uniting this form with *Caladenia gemmata* than exists for the union of many others which are now being brought together and renamed or called varieties, to the disgust of the field botanist. It seems to me to be quite as well to adhere to the naming as given in such books as the *Flora Australiensis*, from which, if possible, in the interest of students there should be no departure, as to unite them under a new name or call the two forms *Caladenia gemmata* and *Caladenia gemmata*, variety *ixioides*, thus leaving the latter quite out of sight in any enumeration of species. From what I could gather *Caladenia ixioides* is constant in the localities where it grows, and does not produce *Caladenia gemmata* or lapse into it though they differ so little that I found it unnecessary to draw the details of both as they appeared to me to be identical, except that the labellum of *Caladenia ixioides* was somewhat smaller in proportion and the parts which were blue in one were yellow in the other. *Caladenia ixioides* flowers in August.

EXPLANATION OF PLATE.

Caladenia gemmata.—Fig. 1. Labellum from above. 2. Labellum from below. 3. Labellum from the side. 4. Pollen-masses. 5. Column from the side. 6. Labellum from the front.



From Nature and on Stone by R.D. Fitzgerald FLS

THELYMITRA
variegata

antennifera

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June 1889.
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***Thelymitra variegata.* (Lindley.) *Thelymitra antennifera.* (Hooker.)**

THELYMITRA VARIEGATA.—The synonym “spiralis” would be a much more appropriate name for this species. The numerous specimens found by me in various parts of Western Australia (to which Colony it is confined) all had the very peculiar spiral leaf, whereas neither the petals nor sepals are variegated though striped and spotted. The advantage, if any, to this species or *Thelymitra antennifera* of the lobes or appendages behind the anthers is very obscure. Both species are evidently fertilised by insects as the pollen-masses are readily extracted from behind the stigma by a touch to the rostellum and come away unbroken, an unusual circumstance where the anther, as in both species, leaves in its growth, the pollen-masses behind it. The position, however, of the extraordinary appendages, so far behind the anthers and the rostellum, seems to preclude the possibility of their being of any use towards the fertilisation of the plant.

THELYMITRA ANTENNIFERA is more common and has a much wider range than *T. variegata* being found not only in Western Australia but in South Australia, Victoria, and Tasmania. Both species flower in August.

EXPLANATION OF PLATE.

Thelymitra variegata.—Fig. 5. Column from the side. 6. Column from the back. 7. Pollen-masses. 8. Column from the front.

Thelymitra antennifera.—Fig. 1. Column from the front. 2. Column from the side. 3. Column from the back. 4. Pollen-masses. 9. Column, sides and appendages removed.



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* Name previously given to a genus in another family.